Title: Comparison of the Effectiveness of Mindfulness-Based Cognitive Therapy and Quality Of Life Therapy on Perfectionism and Rumination in Patients with Migraine

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Comparison of the Effectiveness of Mindfulness-Based Cognitive Therapy and Quality Of Life Therapy on Perfectionism and Rumination in Patients with Migraine

Mohammad Shabani¹, Lili Ghari Saadati²

Abstract

Background: The effectiveness of mindfulness-based cognitive therapy and quality of life therapy in perfectionism and rumination in patients with migraine was compared.

Materials and Methods: The study was carried out as a quasi-experimental study with three groups (two experiment and one control groups) and pretest/posttest design. Study population consisted of all patients with migraine headache visited Torbat Heidarieh-based hospitals and clinics - Iran. The sample group consisted of 45 individuals selected through Available sampling. The participants were randomly divided into three groups each with 15 members. The experiment groups underwent therapeutic interventions so that intervention group one received quality of life therapy and intervention group two received mindfulness-based cognitive therapy. The control group received no intervention. Data gathering tools were a multi-dimension perfectionism scale (Ferasat 1990), Ahvaz Migraine Headage Questionnaire, and Rumination Response Scale (Hoksma and Maro). The tools were filled out by the participants before and after the intervention. The collected data was analyzed in SPSS22.

Results: The mindfulness-based cognitive therapy had no significant effect on perfectionism, while it was effective in rumination in migraine patients. The quality of life therapy was effective in perfectionism and rumination in the patients. The results supported a significant difference between the two types of treatments in terms of effectiveness in perfectionism and rumination in migraine patients. That is, with regard to perfectionism, mindfulness treatment was more effective than the quality of life therapy. Moreover, the results did not support a significant difference between the two types of treatments in terms of their effect on rumination. That is, the effects of the two treatment methods were at the same level.

Conclusion: The treatment based on so called basic cognitions and replacement of negative and intrusive thoughts with positive thoughts and avoiding intrusive thoughts through neutralizing based on the two cognitive treatment methods led to notable improvements in the participants in terms of rumination, frequent intrusive thoughts, and perfectionism. In fact, changes in cognitive reactions to pain and change in beliefs and expectations were the main mechanisms of attenuation of headache.

Keywords: Mindfulness-based cognitive therapy, Quality of Life Therapy, Perfectionism, Rumination

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Introduction

Headache is the most prevalent neural symptom and one of the main medical complaints. Migraine headache is a specific invasive disorder with one side headaches with or without visual or stomach-intestinal problems (e.g. nausea, vomiting, and photophobia). One probable cause of the headache is intracranial blood pressure (1). In fact, migraine is a sort of sensory processing disorder with wide branches within the central nervous system. Currently, there is a general agreement that the nervous and vascular elements have a role to play in migraine. The nervous structures that affect migraine are the cerebral cortex and brainstem (2). There are two general categories of migraine; migraine without aura and migraine with aura (3). The latter, also known as classic migraine, is the less prevalent migraine and constitute 15-20% of migraine cases. The difference between the classic migraine and migraine without aura is that in the former case, the patient experiences a series of neural disorders (e.g. appearance of luminous spots and paresthesia) (4). Migraine is also related to two physical fatigue, emotional stresses, depression, and other psychological factors (5). Migraine headache may influence patient’s work and social/private life with negative effects on one’s quality of life when it happens (6). Recent studies have shown that migraine increases the risk of cardiac diseases, blockage, and hypertension. Authors have argued that the disease creates notable pressure and stress and this affects one’s heartbeat and blood pressure (7). In addition, psychological problems are common among patients with chronic headache, so that a higher percent of patients with migraine headache also suffer depression, and anxiety disorders (8).

One of the prevalent patterns of migraine headaches is frequent intrusive thoughts that appear as rumination (9). Abdolahi reported a relationship between rumination and migraine (10). Rumination refers to the thoughts that tend to be repeatable and conscious and focused on a specific subject; they even appears in absence of immediate and essential environmental stimuli (11). Papajorjo and Wales showed that rumination is a long chain of repetitive, rotating, and self-centered thoughts and a response to primary negative thoughts (12). Cognitive theory recommends that disastrous interpretation in the area of intrusive thoughts lead to occurrence and persistence of such thoughts. The comprehensive analysis recommends that stimulus intrusive thoughts trigger specific automatic types of thoughts. According to this theory, an intrusive thought leads to mood disorder so that individual beliefs system finds the intrusive thoughts unacceptable and consequently triggers negative automatic thoughts (10). Research works have shown that ruminative thoughts in response to painful experiences prolongs and intensifies depressed mood periods. In addition, rumination negatively tilts one’s thoughts so that an individual suffering rumination tends to have lower problem solving capability (12).

Several studies have focused on the biological and environmental effects and the psychological and social factors effective in the development of headaches. The results have supported the relationship between psychological and personality factors and headache (13). Abulghasemi argued that there was a relationship between maladaptive perfectionism and intensification of migraine headache (14). Perfectionism is a set of high performance standard featured with negative self-assessment, criticism, and self-blame. Ambition, discipline, excessive attention to details in daily activities, and excessive sensitivity to life affairs are of the psychological characteristics of perfectionists, which are also common in migraine patients (15). Shirzadi et al. showed in their study that there was a positive relationship between perfectionism and migraine headache so that the former may prepare the ground for psychosomatic disorders like the migraine headache (16). Colotilo and Bromi reported in a study that chronic pains and migraine experience explained 69% of the variance of disability in women with migraine (17). Moreover, depression, migraine headache, and chronic pain explained 8.64% of the variance of quality of life in individuals with migraine. Since the late 1970s, psychological treatments for headache have drawn a great deal of attention. Research findings have also highlighted the effectiveness of non-drug and cognitive and psychological methods for headache treatment (18-20). In the same spirit, the present study surveys the effectiveness of quality of life-based treatment and mindfulness-based cognitive treatment. Psychotherapy based on improvement of the quality of life is a novel approach in positive psychology that includes continuous integration of cognitive therapy and positive psychology. It is consistent with Becks’ latest arrangement of cognitive therapy and cognitive theory of depression and psychopathology (21). The treatment based on the quality of life is an approach to improve happiness. It is recommended both for clinical and non-clinical service takers (22). It deals with and emphasizes
on different aspects of life, prevention, improvement of mental health, and marital satisfaction; so that it is one of the best approaches to improve of quality of life (23). The treatment to improve the quality of life is based on a five-way pattern including living condition, attitudes, standards of fulfillment, importance, and overall satisfaction (CASIO) (24). The objective of the treatment based on quality of life is to improve professional self-care or inner enrichment, and prevent depression (22). Another improvement was the introduction of a new approach by Tisdiel and Williams (1992), which was based on a relationship among cognition, emotion, and the mind. Their work led to a therapeutic cognitive approach based on mindfulness. The cognitive therapy based on mindfulness was a great advancement toward codifying the cognitive behavioral therapeutic approach. Teaching mindfulness entails meta-cognition learning and new behavioral strategies to concentrate on attention and avoiding rumination and tendency to worrying responses, which leads to expansion of new thoughts and attenuation of unwanted emotions. Mindfulness means paying attention in a specific and purposeful manner at the moment and without judgement (13). Although, soothing is not the main objective of mindfulness, non-jugemental observation, internal negative events, and physiological arousal lead to it (25). Mindfulness meditation activates an area of the brain that creates positive emotions and create useful effects on the body immunization function (26). Grisson, Brainard, and Roznzoik showed that mindfulness was effective in attenuation of stress and treatment of physical and mental symptoms in individuals with chronic pains (27). Given this introduction and taking into account the paucity of studies in Iran and other countries on the topic and the effect of quality of life therapy and mindfulness-based cognitive therapy on the variables under study (migraine headache, perfectionism, and rumination) and to compare these two types of treatments, the present study tries to answer “If mindfulness-based cognitive therapy and the quality of life therapy are effective in perfectionism and rumination in patients with migraine?”

Materials and Methods

Study population, sample group, and sampling method

A quasi-experimental with three groups (two experiments and one control) and pre-intervention/post-intervention design was carried out. Rumination was the dependent variable and it was measured for the two experiment groups and the control groups before and after implementation of the independent variables (cognitive therapy based on mindfulness and treatment based quality of life). Study population consisted of all patients with migraine headache appeared in Torbat Heidarieh-based hospitals and clinics (June and July 2018). A sample group (n=45) was selected available and randomly grouped into three groups (n=15) of two experiment and one control groups. Inclusion criteria: Interest in participating in the study, education level ranged from high school diploma to bachelors’ degree, a medical file and diagnosed by a specialist, at least five years history of the attack, migraine attack ranged from 4 to 72hrs., one side headache attack, pulse headache, moderate to severe pain, feeling headache when climbing stairs or doing similar activities, nausea and vomiting, and photophobia and phonophobia or one of them. Exclusion criteria: Diagnosed with psychological disorders, severe physical diseases, drug addiction or abuse, having major medical disorders, neurological disorders, or a chronic physical disease.

Research tool

Perfectionism scale: Frost’s Multidimensional Perfectionism Scale (FMPS) (Frost et al. 1990) is based a multi-aspect perfectionism model. This model was introduced by Frost et al. (1990) with six elements including concerns about mistakes, doubts about actions, parental expectations, parental criticism, personal standards, and organization. The FMPS also contains six sub-scales, which are measured by 35 statements (Stober, 1998) including two positive and four negative aspects. Internal consistency of the Farsi version of the scale is equal to 0.86 and equal to 0.85, 0.72, 0.78, 0.47, 0.57, and 0.83 for the sub-scales concerns about mistakes, doubts about actions, parental expectations, parental criticism, personal standards, and organization respectively. Retest coefficients with one week interval for the scale and the subscales concerns about mistakes, doubts about actions, parental expectations, parental criticism, personal standards, and organization are equal to 0.90, .084, 0.81,
0.79, 0.53, 0.85, and 0.83. Moreover, correlative validity of FMPS based on its relevance to Positive and Negative Perfectionism Scale is at an acceptable level (28).

Ahvaz Migraine Headache (AMQ): The questionnaire was designed and normalized by Najarian (29). It is comprised of 25 statements and developed with participation of 382 students at Shahid Chamran University and Ahvaz Islamic Azad University. The statements are designed based on Likert’s four-point scale (never = 1, rarely = 2, sometime = 3, and most of the time = 4). The questionnaire was used to determine prevalence, screen, and select the sample group. Najarian measured reliability of the tool through retest and internal consistency and obtained 0.8 and 0.91 respectively. Shirzadi Bistoni (16) measured validity of the questionnaire using hospital anxiety and depression scale (HADS), hysteria, hypochondria, and anxiety subscale, and short form of Minnesota Multiphasic Personality Inventory (MMPI), and Ahvaz Aggression Scale and the correlation coefficients were 0.49, 0.34, 0.36, 0.49, and 0.46 respectively; all were significant with P=0.05. He also calculated correlation coefficient of AMQ using Ahvaz Perfectionism Scale and obtained \( r = 0.50 \), which was significant at \( p<0.001 \).

Rumination response scale (RRS): The scale was developed by Hoksma and Maro to measure negative mood reactions. The tools is comprised of two subscales of rumination responses and distraction responses each covered with 11 statements. The 22 statements of the scale are scored based on Likert’s four-point scale (1=never, ..., 4 = most of the time). Bagherinejad, Salehi, and Tabatabaie calculated reliability of the tool using Cronbach’s alpha equal to 0.90 for the tool and 0.92 and 0.89 for the subscales (30). Validity of the questionnaire was examined through finding a correlation with metacognitive beliefs questionnaire equal to 0.65 at 0.001 level –i.e. high validity level. Tabibzadeh and Sepehrian Azar obtained reliability of the tool using Cronbach’s alpha equal to 0.80 [31].

Procedure
After securing the required permission from the research department and making arrangement with the officials of hospitals and clinics located in Torbat Heidarieh City, 45 participants were selected randomly from the patient with migraine who appeared at the health services facilities. Afterward, they were grouped randomly into three groups of 15 (two experiment groups and one control group). The experiment group one received therapeutic intervention based on improvement of quality of life and the experiment group two received mindfulness-based cognitive treatment. The control group received no intervention. Before and after the intervention, the participants filled out the research tools. The study was approved by the Ethics Committee, Mashhad Islamic Azad University under the code No.:IR.IAU.MSHD.REC.1397.029.

<table>
<thead>
<tr>
<th>Session</th>
<th>Mindfulness-based cognitive treatment</th>
<th>Treatment based on the quality of life</th>
</tr>
</thead>
<tbody>
<tr>
<td>One</td>
<td>Determining an approach taking into account confidentiality of peoples’ live information, inviting the participants to introduce themselves, body inspection practice, assigning homework, discussion and determining weekly schedule of sessions, handing over types and pamphlets</td>
<td>Defining the role of quality of life in personal life and introducing treatment based on quality of life and the new therapeutic approach in psychology. Teaching CASIO five-pillar model and determining the headlines and general structure of sessions, determining quality of life profile for individuals and reaching an agreement in the key fields among 16 fields of quality of life-based treatment; collecting feedbacks.</td>
</tr>
<tr>
<td>Two</td>
<td>Relaxation training for 14 muscle groups including arm, elbow, triceps surae muscle, femoris muscle, stomach, chest, shoulders, neck, eyes, and forehead.</td>
<td>Determining agenda and examining the role of variables effective in mental health and determining self-respect based on the treatment model and teaching and assigning “success note” homework and the 2nd way of success in achieving self-respect (“don’t ask please!!”), the 3rd way of success in achieve self-respect (self-acceptance path), the 4th</td>
</tr>
</tbody>
</table>
path of success to achieve self-respect (profitable social relationships), the 5th path of success to achieve self-respect (helping others), teaching BAT technique to practice at home, teaching how to use “abilities list”, and collecting feedbacks.

<table>
<thead>
<tr>
<th>Three</th>
<th>Relaxation training for six groups of muscles including hands, arms, femoris, stomach and chest, forehead, lips and assigning relaxation homework.</th>
<th>Determining agenda and a doing a short review of the previous session, checking homework assignments, defining health based on the treatment protocol, defining the relationship among mental health, happiness, and physical health, surveying unhealthy habits and receiving feedbacks.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Four</td>
<td>Introduce the participant to mindfulness, inhale/exhale technique, relaxation without thinking about anything, respiration observation technique, and mindfulness practice at home before sleep.</td>
<td>Determining agenda and doing a short review of the previous session, checking homework assignments, introduction to the role of goals, values, and spiritual life in life satisfaction, discussing about the philosophy of life, practicing goal finding, teaching life drama technique, advantages of religious and spiritual functions, an introduction to the principles of determining goals, and collecting feedbacks.</td>
</tr>
<tr>
<td>Five</td>
<td>Teaching the technique of paying attention to body movement while breathing, concentration on body limb, searching for physical senses, assigning homework about mindfulness</td>
<td>Determining agenda, short review of previous session, checking homework assignments, determining relationship in the treatment protocol, teaching the main ideas of communication in the treatment based on quality of life</td>
</tr>
<tr>
<td>Six</td>
<td>Teaching attention to the mind, positive/negative thoughts, desired and undesired nature of thoughts, allowing negative and positive thoughts to the mind, throwing thoughts out of the mind without judging them or delving deep in them.</td>
<td>Teaching the skills to improve satisfaction with communication, letter writing 1&amp;2, introduction to and teaching sensations dictionary, and collecting feedbacks</td>
</tr>
<tr>
<td>Seven</td>
<td>Meditation, revising homework and practicing how to see the relationship between activity and mood.</td>
<td>Determining agenda, short review of previous session, checking homework assignments, defining learning in the treatment based on quality of life, teaching the five skills of improving learning (in desire environment), teaching studying and learning skills, and collecting feedback.</td>
</tr>
<tr>
<td>Eight</td>
<td>Planning for the future and using the technique of attending the moment for the rest of life, generalizing the technique to the whole life. Reviewing the course and discussing about the techniques and practices that the patient is not going to follow. Motivating the participants to continue the practices by finding positive reasons for doing so.</td>
<td>Determining agenda, short review of previous session, checking homework assignment, teaching the difference between “must and wanting activity” and what is playing and having fun? Determining the games that ruin quality of life. Examining the relationship between happiness and having fun, the effective steps to establish playing and having fun habits. Training and assigning homeworks of the list of games to be practiced at home and collecting feedback.</td>
</tr>
</tbody>
</table>

**Data analysis**
The collected data was analyzed using descriptive statistics (mid, mean, and standard deviation) and inferential statistics (ANCOVA and independent t-test) in SPSS(v.22).
Results
Totally, 16 participants (35.6%) were men and 29 participants (64.4%) were women. In addition, 20 participants (44.4%) were at age range 22-29 years, 20 participants (44.4%) were at age range 30-39 years, and five participants (11.1%) were at age range 40-42 years. Age range of the participants was 22-42 years and mean age was 32.22 years. Descriptive indices of perfectionism were measured in the control and intervention groups before and after the intervention. As the findings showed, the mean score of perfectionism in the mindfulness group decreased by 5.67 after the intervention (from 91.4 to 85.7); the mean score of perfectionism in the quality of life group decreased by 2.67 (from 90.47 to 87.8); and the decrease in the control group was 1.34 (from 90.27 to 88.3). With regard to the element of perfectionism, there were differences between the pretest and posttest scores to some extents in all three groups. Descriptive indices of rumination were measured at pretest and posttest stages for the control and experiment groups. Based on the indices, mean score of rumination in the mindfulness treatment group decreased by 12 points (from 52.8 to 40.8) at the posttest stage; the mean score of rumination in quality of life group decreased by 9.26 points (from 54.33 to 45.07) at the posttest stage. The same figure increased by 4.33 points in the control group (from 53.07 to 57.4) at the posttest stage. In terms of the elements of rumination, the findings indicated differences among the mean scores at pretest and posttest stages among the experiment groups and the control group.

Data analysis
Normal distribution of the data in the groups was ascertained using Shapiro Wilk test (p>0.01). The results Shapiro Wilk test show that the p-value of the two variables in the control and experiment groups is higher than 0.05 (p-value <0.05). In addition, skewness and kurtosis in all variables range from 2 and -2 -i.e. normal distribution is supported. Therefore, non-parametric tests were used. In addition, equal variance condition was tested used Levene test.

<table>
<thead>
<tr>
<th>Group</th>
<th>Values</th>
<th>Levin's statistics</th>
<th>DF(1)</th>
<th>DF(2)</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compared with the control group, the experimental group Mindfulness</td>
<td>Total score of perfectionism</td>
<td>( / )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td></td>
<td>Total score of rumination</td>
<td>( / )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td>Compared with the control group, the experimental group treatment, quality of life</td>
<td>Total score of perfectionism</td>
<td>( / )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
<tr>
<td></td>
<td>Total score of rumination</td>
<td>( / )</td>
<td>( )</td>
<td>( )</td>
<td>( )</td>
</tr>
</tbody>
</table>

As listed in Table 2, p-values of the both variables are higher than 0.05. Therefore, prerequisite of homogeneity of variances is met (P-value<0.05).

Hypothesis: there is a significant difference between the effectiveness of mindfulness-based cognitive therapy and quality of life therapy on perfectionism and rumination in patients with migraine.

To test the hypothesis, the results of ANCOVA for the two experiment groups were compared.

<table>
<thead>
<tr>
<th>Variable</th>
<th>Treatment</th>
<th>F</th>
<th>Sig.</th>
<th>Effect size</th>
</tr>
</thead>
</table>

Table 3. ANCOVA results of the effects of the treatment methods on perfectionism and rumination
As listed in Table 3, there is a significant difference between the size of effect ($\eta^2$) of the mindfulness-based cognitive therapy and quality of life therapy on perfectionism and rumination. That is, in the case of perfectionism, the former treatment is more effective (0.053 vs. 0.005) and in terms of rumination, the former treatment is more effective (0.312 vs. 0.266).

Table 4. Benferroni post-hoc test on the inter-group effects on perfectionism and rumination in the two treatment groups

<table>
<thead>
<tr>
<th>Values</th>
<th>Group (I)</th>
<th>Group (J)</th>
<th>Different between mean scores (I-J)</th>
<th>SD</th>
<th>Sig.</th>
</tr>
</thead>
<tbody>
<tr>
<td>perfectionism</td>
<td>Quality of life treatment</td>
<td>Mindfulness treatment</td>
<td>$\frac{4}{879}$</td>
<td>$\frac{7}{879}$</td>
<td>$\frac{4}{520}$</td>
</tr>
<tr>
<td>Ruminations</td>
<td>Quality of life treatment</td>
<td>Mindfulness treatment</td>
<td>$\frac{2}{799}$</td>
<td>$\frac{7}{799}$</td>
<td>$\frac{4}{714}$</td>
</tr>
</tbody>
</table>

As listed in Table 4, the difference between the two treatment methods in terms of effectiveness on perfectionism and rumination is not significant ($p>0.05$).

Discussion
The effectiveness of mindfulness-based cognitive therapy and quality of life therapy on perfectionism and rumination in patients with migraine was examined. The ANCOVA results supported the effect of the both treatments on perfectionism and rumination so that the two methods were significantly different in terms of effectiveness in perfectionism and rumination. The effect size of mindfulness treatment on perfectionism was higher than that of the quality of life therapy. In addition, the effect size on rumination by the mindfulness treatment was higher than that of the quality of life therapy. These findings are consistent with Abdollahi et al., Azargon et al., Mansouri Shahd et al., and Melisa Bivi (9, 13, 31, 32). Yusefi et al. showed that cognitive intervention based on mindfulness was effective in ruminations (33). Abbas Abadi argued that the cognitive intervention based on mindfulness was effective in ruminations (34). Moreover, Shahidi maintained that treatment based on mindfulness was effective in perfectionism (35). Abdollahi et al. (10) showed that behavioral cognitive treatment was effective in attenuating rumination in patients with migraine who suffered compulsory obsessive disorder. Mansourishad et al. demonstrated that behavioral-mindfulness-based cognitive therapy was effective in attenuation of migraine headache (32). Yusefi et al. showed that mindfulness-based cognitive therapy was effective in rumination, meta-cognitive beliefs, and perfectionism in patients with obsessive through disorder. All these studies have reported consistent results with the present paper (24). Treatment based on mindfulness helps the individual to concentrate on the moment rather that the future so that it increases awareness about one’s body by improving self-supervision. Such intervention leads to a notable decrease in psychological symptoms and higher self-care. On the other hand, people feel less motivation to control their environment following the unexpected diagnosis of migraine (36). Mindfulness practices might create psychological functions and considerable changes.
in patients’ lives. That is, by developing strategies to adapt to their situations and better defensive structures, individuals achieve a higher mental welfare. Individuals also learn to positively reevaluate the unwanted events like migraine. Through learning coping skills in the face of stressful events, people learn to deal with such situations with self-confidence and optimistically. They tend to see things under control and in general use their information processing system in a more efficient way. Patients tend to blame themselves and lose their coping power when a part of their thoughts is focused on the idea that their lifestyle had led to the disease they suffer. Mindfulness-based cognitive therapy helps these individuals to experience emotions neither as positive or negative (37). In this way, the individual lets in and out the thoughts and emotions without struggling with them (38). The first step in mindfulness treatment is the improvement of meta-cognitive awareness – i.e. reevaluating one’s thoughts and emotions and perceiving them as temporary events rather than reality. It is assumed that this meta-cognitive awareness leads to less rumination – repetition of negative thoughts – and in turn less catastrophic thinking, rumination, and other symptoms like stress, and ineffective/passive coping skills. All these lead to an attenuation of migraine symptoms and higher quality of life for the patient (39).

To elaborate on the difference between the mindfulness-based cognitive therapy and the quality of life therapy, comparing with the latter, the former significantly alleviates rumination and perfectionism as it is based on Beck’s pathological model and tries to evaluate and measure the fundamental beliefs and assumptions that determine cognitive content in Beck’s theory. Therefore, an improvement in efficient attitudes following the treatment is quite expectable. Moreover, throughout mindfulness-based cognitive therapy, more cognitive changes in, for instance, rumination and ineffective attitudes happen. These therapeutic changes mediate the symptoms of perfectionism. Mindfulness training, through thinking practices, enable the patients to see the negative ruminative responses in their brain more clearly and break the thought patterns. The quality of life therapy is based on a five-path pattern (CASIO- condition, attitude, standards, importance, and overall satisfaction) (40) that supports the approach of satisfaction with life. However, the objective in mindfulness treatment is to improve professional self-care or inner richness and avoiding depression (22). The main area of focus under mindfulness approach is on improving meta-cognitive awareness and self-knowledge processes that support non-useful reactive and ruminative modes. Here, the effectiveness of mindfulness-based cognitive therapy on rumination and perfectionism was supported. Based on the results of this study, it is suggested that researchers evaluate the effect of mindfulness-based cognitive therapy on gender-specific migraine sufferers as well as on other types of migraine. It is also suggested that health psychologists use mindfulness-based cognitive therapy to solve problems related to rumination and other mood disorders in migraine headaches. Limitations of our study include the small sample size that can challenge the validity of the findings and the use of self-report instruments.

**Conclusion**

The education based on reforming base cognitions, replacing negative and intrusive thoughts with positive thoughts, and solving intrusive thoughts avoidance through neutralization using mindfulness-based cognitive therapy and quality of life therapy led to a notable improvement in rumination, frequent intrusive thoughts, and perfectionism. In fact, changes in cognitive responses to pain, beliefs, and expectations are the main mechanism of attenuation of headache. Cognitions are related to emotional, physiological, and behavioral responses. Therefore, one’s thoughts might affect the behavior through affecting physiological and emotional responses.

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Conflict of interest
The authors have no conflict of interest to declare.

References
34. Abbas Abadi S. Effectiveness of cognitive-based cognitive therapy on perfectionism. iran2014.
37. Amber SE. The role of mindfulness in affective forecasting. usa: Kent State University 2009.